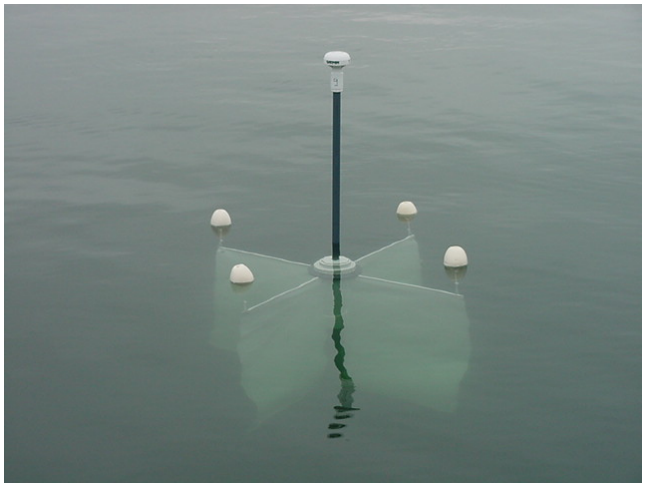
In this Issue…

Dyes and Drogues

By Frank Meriwether

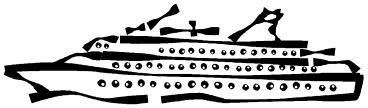


Our office conducts dye and drogue studies to help determine the size of closure zones around outfalls from wastewater treatment plants. Surface floats called drogues and tracing dyes are used to find where the discharge goes and how much it dilutes. We use a tracer dye called Rhodamine WT. This tracer does not break down in open waters, even over several days, and is very safe to use. Only a small amount is needed since its detection limit is about 100 parts per trillion. The dye is slowly injected into the outfall pipe. We can then use a submersible pump on a boat and get instant dye concentration readings in marine waters using a fluorometer. The submersible pump can be raised or lowered, and the boat can cruise with the pump operating to get dye concentrations at various locations. Drogues are surface floats that have vanes attached at various depths of water. The submerged vanes travel in the same direction and speed as water at their depth. Typically we release several sets of drogues over an outfall and record their location with GPS over time. This provides a circulation picture of the treatment plant's effluent over various tide phases. Drogues have been used with dye releases to help determine both the path and the dilution of discharges from treatment plants near harvestable shellfish resources.

We always get help from the wastewater treatment plant and often from other agencies, the tribes or the shellfish industry to do these studies. This helps us cover more area and get simultaneous readings at different locations. If you have questions about these studies, contact Frank Meriwether at (360) 236-3321.

Proposed Peak Wet Weather Policy

Our agency and the Department of Ecology recently commented on EPA's Proposed Peak Wet Weather Policy. The new proposal is a significant improvement over the 2003 proposed policy. Our agency supported Ecology's comments and expressed these additional concerns: Funding sources should be considered since implementing the requirements would provide a significant burden to Ecology. Minimizing bypasses, maximizing secondary treatment and providing effective disinfection of any blended effluent released near shellfish waters is very important. Direct and frequent testing of the bypass flow for indicator pathogens when the bypass is discharged near shellfish waters is also important. The policy should include a goal statement with a long-term target of eliminating such bypasses. For copies of specific comments, contact David Peeler, DOE, at dpee461@ecy.wa.gov and Frank Meriwether, DOH, at Frank.Meriwether@doh.wa.gov



Cruise Ship Wastewater

The Department of Ecology currently has a memorandum of understanding with the Northwest Cruise Ship Association that limits wastewater discharges into Puget Sound to member ships (typically large cruise ships) that have advanced wastewater treatment systems. Upon approval by Ecology, member ships with advanced treatment systems may continually discharge while transiting Washington waters. These systems can effectively remove fecal coliforms but may not eliminate viruses like the *Norovirus*. The National Shellfish Sanitation Program (NSSP) requires states that export shellfish to assess the potential risks associated with sewage treatment discharges and other outfalls of significance to public health. The NSSP requires a closure zone, adjacent to each outfall, which considers the possible interruption in the treatment or disinfection of discharged sewage. Because ships traveling through Puget Sound pass numerous shellfish beds, the NSSP requires us to assess the risk of contaminating shellfish beds from their discharges. In 2005, the legislature appropriated $100,000 to our agency to undertake this study. We contracted with the University of Washington to research the impact of *Norovirus* in discharges from large passenger ships. The study would assess how much virus may be discharged from a ship, how currents and ship's speed dilute discharge, how the virus might accumulate and be retained in shellfish, and the risk of human illness from consuming the shellfish. The report will be used to determine the size of shellfish closure zones to protect public health. It is possible that closure zones may remain inside the passenger ship corridor, creating no impact to shellfish harvests or passenger ship operations. The final report will be completed by June 30. In addition, our agency will research discharges from smaller vessels to determine if those impacts should be considered. We are also planning to provide test kits for sampling treated discharge during any *Norovirus* illness outbreak, which could take until November 2007 (two seasons of sampling).

Skagit County Approves Clean Water Program

In December, Skagit County approved a $1 million per year clean water program that will enhance efforts to identify and correct water quality problems. Those efforts will help protect existing shellfish growing areas from degradation and help reopen some areas now closed. The program will monitor water quality and septic tank systems, minimize pollution from farms, restore fish habitat, and support lake management throughout the county. A coalition of interests, led by the shellfish industry, promoted the program.

Shellfish Growing Area Reclassifications

Since January 2005, a number of shellfish growing areas have been reclassified. They include:

NORTH BAY

Fifty acres in **North Bay** near the town of Allyn were **upgraded** from Conditionally Approved to Approved in February. Mason County Health Department staff identified the sources of pollution in the area as faulty main sewer connections and domestic animal waste and fixed these problems. Water testing by our office shows that the area meets the standards for an Approved classification.

BURLEY LAGOON

In July **Burley Lagoon** had two classification changes. About 100 acres were **upgraded** from Restricted to Conditionally Approved and about 25 acres were **downgraded** from Approved to Conditionally Approved. Burley Lagoon has undergone five classification changes since 1993 when the entire 200-acre area was classified as Conditionally Approved. Pollution control work by Pierce and Kitsap County governments and Pierce and Kitsap Conservation Districts have helped control a variety of pollution sources, including stormwater run-off, animal keeping practices, and on-site sewage systems.

HENDERSON INLET

In July, about 50 acres of **Henderson Inlet** was **downgraded** from Conditionally Approved to Prohibited. This is the third downgrade since 2000. Unfortunately, the inlet is downstream of rapidly developing parts of Lacey, Olympia, and Thurston County and as a result is subject to pollution from stormwater run-off, domestic animals, and on-site sewage systems. Because of the downgrade Thurston County formed a shellfish protection district in 2001 and is considering requiring all property owners in the Henderson Watershed Protection District to have a renewable septic system operation certificate.

ANNAS BAY

In August, 300 acres in **Annas Bay** near the mouth of the Skokomish River were **downgraded** from Approved to Prohibited because water quality standards were no longer met. No particular sources of pollution have been identified. Mason County is leading the restoration project.

HAMMERSLEY INLET

In November, about 50 acres in **Hammersley Inlet** were **upgraded** from Prohibited to Approved. Field and modeling work conducted by our office, the FDA, Ecology, the City of Shelton and their consultants showed that Shelton's Wastewater Treatment Plant discharges are rapidly mixed and diluted in Hammersley Inlet on an ebbing tide. The study was supported in part by the shellfish industry in the area. The City of Shelton repaired their outfall to enhance the initial dilution of the effluent and proposed several upgrades to their plant and a limit on the amount of wastewater that it will discharge into Oakland Bay. This will help protect the newly opened shoreline and nearby harvest areas in Hammersley Inlet and Oakland Bay.

Derelict Live-Aboard Removed from Bay

A derelict house barge was recently removed from Barlow Bay on Lopez Island, eliminating a pollution source of concern. In 2004, the Tulalip Tribes were warned of a shellfish harvest closure if the barge on the eastern side of the bay was not removed. There was no means of properly treating and disposing of human and animal wastes on the barge. Our agency intended to close the eastern half of Barlow Bay to shellfish harvesting to protect the public from consuming potentially contaminated shellfish. No immediate public threat existed because no commercial or public recreational harvest of shellfish had occurred in this area for years. In 2005, San Juan County issued a notice of violation to the barge's owner. The county prohibits mooring of houseboats outside of marinas approved for this use. Such marinas must have sanitation facilities for sewage hook ups. Violators may be subject to civil penalties up to $1000 for each day of violation. Criminal penalties involve fines up to $5000 and imprisonment.

The eventual removal and dismantling of the house barge resulted from the combined efforts of the San Juan County Prosecutor's Office, the Department of Natural Resources, the Tulalip Tribes and our agency. As a result, our office withdrew its intent to close the eastern portion of Barlow Bay. State and local programs are on the lookout for illegal moorage of occupied vessels near shellfish resources. Their removal helps to ensure clean water and safe Washington shellfish.

HACCP Training

Shellfish dealers have asked for HACCP training that's more convenient and closer to home. In response, we now offer classes in convenient locations around the state, and we've lowered the cost to $65, a $10 savings per attendee. What is HACCP training? HACCP, Hazard Analysis Critical Control Points, is a system to identify and control hazards associated with shellfish product and processes. Our first class in the new format was held at the Taylor Shellfish Company in Shelton. The class was split into two days spaced a few days apart to allow participants to practice implementing methods at their plants. The training was well received, and attendees were better prepared for the second day of class. Interested in training? Contact Richard Lillie at (360) 236-3313.

Export Certificates

Shellfish companies that export to Asia have been patiently awaiting the Export Certificate Online Application System. The system was scheduled to "go live" in early November, but issues identified during participant training required changes to the system and delayed implementation. We are now testing the revised system and hope to have it online soon. Thanks to everyone who participated and provided input. We ask for your continued patience while we work through the final issues. We will notify companies that attended training when the system is ready. If you did not attend but wish to be notified, please contact us at (360) 236-3330.

New Field Inspection System

In December, our office successfully moved from an outdated data system to a modern field inspection system. With the new system, inspectors will take laptop computers into the field and use portable printers to print inspection reports on the spot. This system was successfully used by Tacoma-Pierce County food inspection staff for several years and was modified to meet the specific needs of commercial shellfish operations. The new system will provide efficiencies in tracking the many aspects of the inspection and licensing process.

Agency Rules Update

Agency rules on shellfish were amended to reference the updated NSSP Model Ordinance. The *2003 National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish* was adopted into Chapter 246-282-005 WAC, replacing the reference to the 1999 ordinance. The main document includes guidance documents separate from the older version. A public hearing was held in November to discuss the amendment. No comments opposing the change were received.

The full text of the 2003 NSSP Guide is available online at the US FDA's web site, www.cfsan.fda.gov/~ear/nss2-toc.html. If you have questions about the updated NSSP model ordinance, please contact Nancy Napolilli at nancy.napolilli@doh.wa.gov or (360) 235-3325.

Shellfish Tagging Revisited

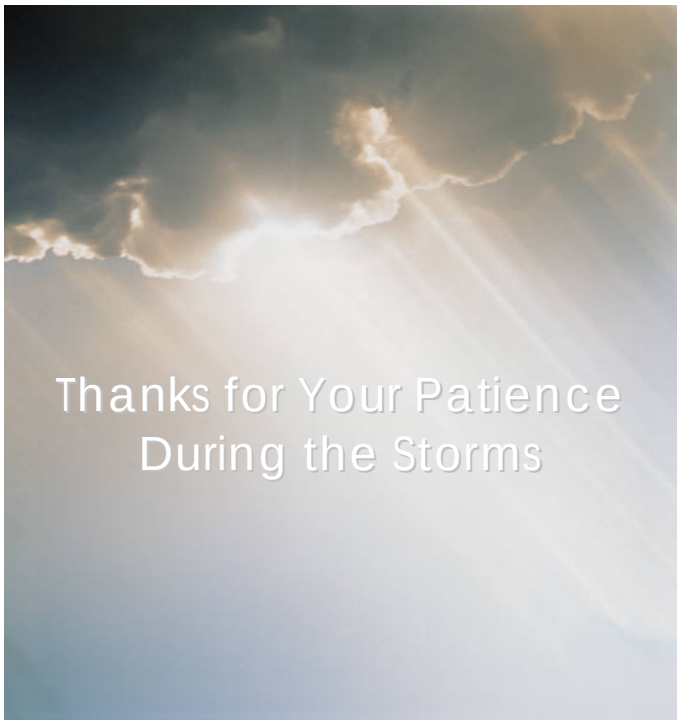
The NSSP Model Ordinance specifies that dealers' tags shall be durable, waterproof, and contain the following indelible, legible information: dealer's name, address, certification number and, if applicable, the original shellstock shipper's certification number; the date of harvest; *the most precise identification of the harvest location as is practicable*; the type and quantity of shellstock; and the following statement in bold capitalized type:

"THIS TAG IS REQUIRED TO BE ATTACHED UNTIL CONTAINER IS EMPTY OR IS RETAGGED AND THEREAFTER KEPT ON FILE FOR 90 DAYS"

The reverse side needs to contain a consumer warning statement. Example warnings are given in the Model Ordinance. *The most precise harvest location as is practicable* means the name of the growing area, identification of the harvest site, and WA for Washington State. Growing areas need to be identified using the official growing area name and not a local name. Our inspectors have been monitoring the tags over the past year and have seen a tremendous improvement in the accuracy of the information on them. Keep up the good work!

Stormy Weather

We would like to thank the many shellfish operations that closed their harvest areas during the record-breaking siege of stormy weather we had in December and January. Fourteen shellfish growing areas were closed due to heavy rain, floods, discharges from sewage collection lines and upsets at wastewater treatment plants. Those areas included Drayton Harbor, Portage Bay, Annas Bay, Lynch Cove, Port Orchard, Dyes Inlet, Filucy Bay, Burley Lagoon, Nisqually Reach, Henderson Inlet, Oakland Bay, Rocky Bay, North Bay, and Grays Harbor. These closures were essential to assure that only safe shellfish were on the market. Let's hope that we've seen the worst of the weather for a long while.

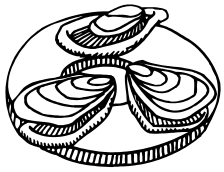


Shellfish and the State Retail Food Code

The Food Safety Program provides guidance to local health departments on requirements for retail food establishments such as restaurants and grocery stores. This includes guidance on maintenance of shellfish tags, proper cooking temperatures, and consumer advisory language for food establishments that offer raw or undercooked shellfish. These requirements are contained in the Washington State Retail Food Code.
They are currently working on a guidance document for live holding shellfish tanks at retail establishments.

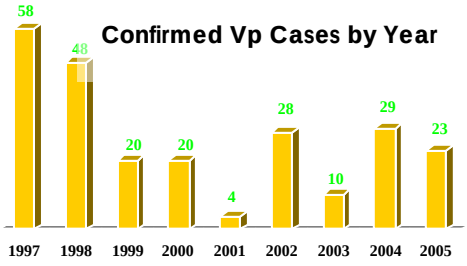
Study of *Vp* in Oysters

The Pacific Shellfish Institute submitted a grant to the USDA NRI to study *Vp* in west coast Pacific Oysters. Since the larger outbreaks in 1997-98, sporadic cases attributed to Washington State oysters continue to be reported. These cases are associated with low number of organisms detected in oyster meat samples; the tdh virulence factor is often below detection. Environmental conditions, culturing and harvesting techniques vary among samples. The study would attempt to identify *Vp* species of concern and environmental and physiological conditions that contribute to the growth and pathogenicity of this organism in order to implement reasonable management practices to control the incidence of illness.



Vibrio parahaemolyticus (*Vp*) Update

Despite warm sun and the daytime tides this summer, we had a relatively normal year, with 23 *Vp* cases reported. Since 1999, Washington has averaged 19 cases of oyster-associated vibriosis per year. However the Food and Drug Administration estimates that this illness is under reported and under diagnosed. For every reported illness 20 cases are assumed not reported.[1] Careful handling and chilling of shellfish during the heat and exposure of summer tides continues to be an important step in preventing these outbreaks.

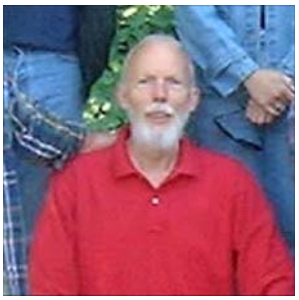


[1] Taken from FDA Quantitative Risk Assessment (Kennedy, 2000; Mead *et al*., 1999)

Comings and Goings

Two Retirements...

Don Melvin



Don Lennartson

And Two Newcomers...

Debby Sargeant

Darleen Muhly

Retirements

In July, **Don Melvin** retired after more than 15 years in our Shellfish program. Since 1989, Don led efforts to restore sanitary conditions to closed and threatened shellfish areas and worked closely with local governments, Ecology, tribes and the shellfish industry to reopen several shellfish growing areas.

In December, **Don Lennartson,** long-term member of our Restoration program, retired. Don was instrumental in getting several shellfish growing areas reopened including Drayton Harbor, Burley Lagoon, Portage Bay and Rocky Bay.

Congratulations, Don and Don!

Changes and Newcomers

Debby Sargeant was hired to fill the vacancy left by Don Melvin. Debby has extensive experience evaluating water quality in shellfish growing areas while working at the Department of Ecology. At Ecology, Debby completed Total Maximum Daily Load (TMDL) studies with particular focus on bacteria impacting shellfish growing areas.

Greg Combs has assumed Don Lennartson's role in the Restoration program. Greg has worked in the growing area section for over ten years. Previously his focus was monitoring water quality in shellfish growing areas.

Susie Leland is in-training as a public health advisor. Her new focus will be on plant inspections and shoreline surveys. Susie has worked in our office for over four years. Her field experience includes collecting samples for *Vibrio* testing and assisting in collecting water samples in shellfish growing areas.

Taking over for Susie, **Darleen Muhly** joined our office in January. Darleen worked for a number of state agencies including the Department Fish and Wildlife where she assisted the Licenses Division Manager during the implementation of their recreational license sales system.

Helen Seyferlich left this fall. Helen served as the harvest site certification lead and tribal coordinator.

Cathy Barker has assumed Helen's roles but still serves as backup shellfish standardization officer. Cathy has worked in the Shellfish program for over two decades, and served as tribal liaison in 1994-99.

Conference Highlights

Emerging Biotoxins of concern – DSP, yessotoxin

Update on DA Neurotoxicity

Microbial Source Tracking

Vp Risk Assessment Model

Tdh+ Monitoring and Trends

Vp Research

Post Harvest Controls

Ecology and Epidemiology of the Alaska Outbreak

Bacteriophage and Coliphage Monitoring for viral indicators

Cruiseship Discharge Study

Washington State Department of Health
Office of Food Safety and Shellfish

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Olympia WA 98504-7824

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(360) 236-3330

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Our office has moved!

This summer, our Tumwater office moved across the street to the newly-constructed Town Center 2 Building at 111 Israel Road.

Our phone numbers, e-mail and mailing addresses have not changed.

We're on the Web!
See us at:
www.doh.wa.gov/ehp/sf

PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND HEALTHIER WASHINGTON

PAC RIM Conference

The Annual Pacific Rim Shellfish Sanitation Conference will be held April 24-27 at the WestCoast Cape Fox Lodge in Ketchikan, Alaska.

Registration is $120 if paid by March 24 or $150 thereafter and includes all April 25-26 sessions, refreshments, lunch, and the evening reception on April 24.

For room reservations, contact the WestCoast Hotel at (866) 225-8001 or www.capefoxcorp.com/cflodge1.html.

Licensed shellfish companies should receive agenda and registration information in the mail shortly. Since this is a non-ISSC conference year, we will not be formally soliciting proposals.

Questions? Please call Jessie DeLoach, PacRim Chairman, at (360) 236-3302 or Terry Sawyer, Vice Chairman, at (415) 663-9218 x203.

Contacts

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Bob Woolrich
Classification/Water Quality *(360)236-3329*

Jessie DeLoach
Licensing and Certification *(360)236-3302*

Dave Gifford
Biotoxins *(360)236-3074*

Other Numbers

General Information	*(360)236-3330*
FAX	*(360)236-2257*
Web Address	*www.doh.wa.gov/ehp/sf*

Biotoxin Closures

PSP Hotline	(800)562-5632
PSP Web	*doh.wa.gov/ehp/sf/biotoxin.htm*
PSP Maps	*doh.wa.gov/biotoxinmaps.htm*

Entrance to our new offices at the Town Center 2 Building

DEPARTMENT OF HEALTH
OFFICE OF FOOD SAFETY AND SHELLFISH
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